What is claimed is:

1. An information relay device connected between a plurality of logical or physical networks for performing an operation for relay of information between said networks, comprising:

a transmit/receive processing unit for receiving a general purpose multicast message from one of said plurality of networks and transmitting a multicast message to at least one of said plurality of networks; and

a protocol conversion processing unit for converting, in the case where the general purpose multicast message received by said transmit/receive processing unit is a multicast protocol message of a certain level, said multicast protocol message of the certain level into a multicast protocol message of another level.

2. An information relay device according to Claim 1, wherein in the case where the general purpose multicast message received by said transmit/receive processing unit is said multicast protocol message of the certain level, said protocol conversion processing unit rewrites a multicast address of said certain level in the received multicast message into a multicast address of said other level and rewrites a message of said certain level in the received multicast message into a message of said other level having an equivalent meaning.

3. An information relay device according to Claim

2, further comprising a multicast information memory for storing a relationship between said multicast address of said other level and a receiver corresponding thereto, wherein in the case where the multicast message received by said transmit/receive processing unit indicates a transmit request and the updating for entry addition, said protocol conversion processing unit adds the rewritten multicast address of said other level in the received multicast message and a corresponding receiver into said multicast information memory, and in the case where the multicast message received by said transmit/receive processing unit indicates a transmit refusal request and the updating for entry deletion, said protocol conversion processing means deletes the rewritten multicast address of said other level layer in the received multicast message and a corresponding receiver from said multicast information memory.

4. An information relay device according to Claim 1, wherein in the case where the general purpose multicast message received by said transmit/receive processing unit is a multicast protocol message of the third layer in an OSI reference model, said protocol conversion processing unit converts said multicast protocol message of the third layer into a multicast protocol message of the second layer and said transmit/receive processing unit transmits said multicast protocol message of the second layer to at least one of said plurality of networks.

5. An information relay device according to Claim 1, further comprising a multicast address memory for storing a multicast address of said other level, wherein in the case where the general purpose multicast message received by said transmit/receive processing unit is said multicast protocol message of the certain level, said protocol conversion processing means rewrites a multicast address of said certain level in the received multicast message into a multicast address of said other level by use of the corresponding multicast address in said multicast address memory.

6. An information relay device according to Claim 1, further comprising a multicast address memory for storing a prefix portion of a multicast address of said other level, wherein in the case where the general purpose multicast message received by said transmit/receive processing unit is said multicast protocol message of the certain level in an OSI reference model, said protocol conversion processing unit rewrites a multicast address of said certain level in the received multicast message into a multicast address of said other level in the OSI reference model by use of the prefix portion of the corresponding multicast address in said multicast address memory.

7. An information relay device according to Claim 6, further comprising a monitor processing unit for monitoring a multicast message of said other level on said networks to store the monitored multicast message of

said other level into said multicast address memory.

8. An information relay device according to Claim 6, wherein in the case where the general purpose multicast message received by said transmit/receive processing unit is a multicast protocol message of the second layer in an OSI reference model, said protocol conversion processing unit converts said multicast protocol message of the second layer into a multicast protocol message of the third layer and said transmit/receive processing unit transmits said multicast protocol message of the third layer to at least one of said plurality of networks.

9. An information relay device according to Claim 1, wherein the general purpose multicast message received by said transmit/receive processing unit is a multicast protocol message of the second or third layer in an OSI reference model, and a plurality of multicast protocols exist in one of said second and third layers in the OSI reference model, and said protocol conversion unit converts, in the case where the general purpose multicast message received by said transmit/receive processing unit is a multicast protocol message of the other of said second and third layers in the OSI reference model, the multicast protocol message of said other layer into all said plurality of multicast protocol messages of said one layer.

10. An information relay device according to Claim 1, wherein the general purpose multicast message received

by said transmit/receive processing unit is a multicast protocol message of the second or third layer in an OSI reference model, a multicast protocol of said second layer is GMRP (GARP Multicast Registration Protocol), and a multicast protocol of said third layer is IGMP (Internet Group Management Protocol), DVMRP (Distance Vector Multicast Routing Protocol), PIM-SM (Protocol-Independent Multicast-Sparse Mode), PIM-DM (Protocol-Independent Multicast-Dense Mode), MOSPF (Multicast Extensions to OSPF), CBT (Core-Based Trees) or MLD (Multicast Listener Discovery) of IPv6.

11. An information network system comprising:

a plurality of logical or physical networks;

a terminal connected to each of said plurality of networks;

a multicast server connected to one of said plurality of networks; and

a plurality of information relay devices each connected between two corresponding ones of said plurality of networks for performing an operation for relay of information between the two corresponding networks, each of said plurality of information relay devices being provided with a transmit/receive processing unit for receiving a general purpose multicast message from said multicast server through one of plurality of said networks and transmitting the general purpose multicast message to at least one of said plurality of networks, and a protocol conversion processing unit for converting,

in the case where the general purpose multicast message received by said transmit/receive processing unit is a multicast protocol message of a certain level, said multicast protocol message of the certain level into a multicast protocol message of another level.

12. An information relay method of performing an operation for relay of information between a plurality of logical or physical networks, comprising the step of:

converting, in the case where a general purpose multicast message received from one of said plurality of networks is a multicast protocol message of a certain level, said multicast protocol message of the certain level into a multicast protocol message of another level.

13. An information relay method according to Claim 12, wherein in the case where the received general purpose multicast message is a multicast protocol message of the third layer in an OSI reference model, said multicast protocol message of the third layer is converted into a multicast protocol message of the second layer and said multicast protocol message of the second layer is transmitted to at least one of said plurality of networks.

14. A computer program embodied on computer-readable medium for performing an operation for relay of information between a plurality of logical or physical networks, comprising:

computer readable program code means for converting, in the case where a general purpose multicast

message received from one of said plurality of networks is a multicast protocol message of a certain level, said multicast protocol message of the certain level into a multicast protocol message of another level; and

computer readable program code means for transmitting the converted multicast protocol message of said other level to at least one of said plurality of networks.

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